GEOS-Chem Steering Committee Telecon
May 16, 2016 9:30-11:00 Eastern

Attending/Missing**:**
Peter Adams, **Kevin Bowman, Mathew Evans, Emily Fischer, Jenny Fisher**, **Colette Heald, Barron Henderson, Daven Henze, Chris Holmes**, **Daniel Jacob**, Dylan Jones, **Prasad Kasibhatla**, **Hong Liao,** Jintai Lin, **Hongyu Liu, Michael Long, Randall Martin, Dylan Millet**, Andrea Molod, Steven Pawson, **Jeff Pierce, Jun Wang,** Yuxuan Wang, Shiliang Wu, **Bob Yantosca, Lin Zhang,** Qiang Zhang

1. **General Updates (Daniel)**
    - IGC8 planning: available date at Harvard is May 1-4, 2017. Send any comments to Daniel; planning will begin this summer.
    - Daniel requested feedback on timing of next public release. GCST is currently working on FlexChem, which involves stripping out SMVGEAR and testing a whole suite of simulations. Timeline for this to complete is end of summer (v11.1g). This will be followed by suite of other updates to be included (e.g. moisture fix, enable netcdf output). We could have a public release at this point (to maintain our plans for an annual release). However, there are also a suite of scientific updates that are not quite ready (halogen chemistry, isoprene chemistry, aerosol chemistry) but are significant for the simulation that we would like to include in this release. Therefore Daniel proposes to delay the public release to next year, so that the Support Team is not derailed with a public release this Fall and we have a significant scientific release that can be well-veted prior to IGC8. Several SC members expressed an interest in using MERRA-2. Community may be able to use an intermediate version, but this would need to be well advertised and would not have the standard complete documentation of a publish release. There is also an interest in getting Flexchem and the moisture fix into the hands of users as soon as possible. After discussion, it was determined that though the v11 updates are more structural than scientific, they warrant their own release. So the next public release will be planned for v11.1h this Fall.

2. **Engineer's Report (Bob)**
    - FlexChem has been merged with v11.1f and is being tested. After this there will be significant changes in the code to remove all the legacy code associated with SMVGEAR. This will take a few weeks. FlexChem will define v11.1g.
    - For individuals interested in GCHP there is now a development test kit that can be downloaded for testing how the code ports to other systems.
    - Optimal chemistry and transport timesteps are implemented as of v11.1f.
    - Some discussion about unit testing raised by Prasad; will follow up with Support Team

3. **Moisture Fix (Kevin)**
    - A JPL document describing results of tests was circulated and has been signed off on by the Transport WG. The related fix has now been submitted to Support Team for integration in v11.1h.

4. **GCHP and FlexChem (Mike)**
    - GCHP has been ported to Dalhousie and they have been able to run it on a Compute Canada platform.

- GCHP is currently in an "alpha state" – this corresponds to the development test kit now available for download. Community is encouraged to download it and run it.
- Have found that comparisons between GEOS-Chem classic with GCHP can never be done perfectly given the differences in the grids (lat-lon vs. cube-sphere). Possibly comparing GCHP vs. GEOS CTM would be a better direct comparison.
- From testing FlexChem appears to be similar or faster than SMVGEAR. Also testing "own version" of KPP (since no longer supported by VTech), and working with other communities (MPI, WRF-Chem, etc.) on this.

5. Adjoint Model (Daven)

- Last release in April, largely reflects updates from the forward code
- Have a version of the adjoint working with MERRA-2. It has not yet been released as code is being cleaned up.

6. Working Group Reports

a. Adjoint model and data assimilation (Kevin, Dylan J.)

- No major updates on adjoint side
- Visiting scientist at JPL who works on ensemble kalman filtering of Aura data and is going to work on translating that ensemble kalman filter into GEOS-Chem. Contact Kevin if interested in this capability.

b. Carbon Cycle (Kevin, Dylan J.)

- No updates

c. Hg and POPs (Chris, Jenny)

- A number of updates in v11.01, these have been benchmarked and information is on the wiki
- POPs updates have gone in, but have not yet been benchmarked (will be done by Cary Friedman)

d. Sources and surface uptake (Jintai, Qiang)

- No WG Chairs present

e. Nested Model (Jun, Lin)

- We have the new Asia window and the new MERRA-2 fields, so there will be some code modifications associated with this. WG chairs will take this on unless other volunteers.
- Dylan Millet has a nested India simulation but only GEOS-5; anyone who is interested in this can contact Dylan.
- Eloise Marais has also been working on an African window
- Jenny Fischer is about to start work on an Australian nested window.

f. Chemistry-climate (Hong, Shiliang)

- No WG chairs present

g. Aerosols (Colette, Peter)

- Wiki guidelines on calculating PM2.5 will be updated by Randall's group to include a discussion of water uptake
- Randall pointed out over-sight that not included full OA mass in optics calculations. Discussing appropriate fix.
- Duncan Fairlie still working on representation of wet scavenging of SO2 in convective updrafts
- Daniel raised the issue of the future of the organic aerosol simulation which he feels is insufficient. Colette agreed, but suggested that the Aerosol WG was waiting on the FlexChem development to have that discussion; suggested that we could have a telecon on this issue this summer. Daniel expressed personal opinion that Eloise Marais's development of isoprene SOA as well as developments from Jose Jimenez's group (fire SOA) are improvements over current scheme and should be adopted. Daven raised issue that not all SOA options are tested as part of the benchmarks and that this issue should also be part of the discussion. Colette will organize a telecon for this summer
- Chris raised the question about adding a PM2.5 diagnostic to simplify output and avoid having users report different things as PM2.5. Colette explained that the issue is what to do about water when comparing with observations that are made at different RH (RH at 50% for EU, for 35% for US, etc). Jeff suggested that could use ND49 to output PM2.5 at a number of RH (0, 35%, 50%, etc.). Randall will discuss this with Aerosol WG and then provide a recommendation to be implemented by the GEOS-Chem Support Team. This will also be part of the discussion at the aforementioned telecon.

h. Chemistry (Mat, Barron)

- New JPL kinetic updates: Barron has gone through all the non-halogen updates and these generally appear to be modest. These will be submitted to the standard code (as part of v11.1h).
- Mat's group working on a merged halogen chemistry (Br, Cl, and I chemistry), which will be submitted to ACPD shortly, and then will submit the update to Support Team. This wll be a priority after FlexChem is implemented since student Tomas Sherwen will be leaving soon. Mat will follow-up on run time implications.
- A wide range of organic simulations out there. The community has generally be holding off until FlexChem, but will need a conversation to determine what the future of the scheme will be. An important question is how detailed should schemes be, given the uncertainty on these, particularly for large C number. Barron has been working on an objective 1-D model tool to determine the complexity needed in a 3-D model.

i. Organics (Dylan M., Emily)

- Need to coordinate updates in terpene and aromatic chemistry with Aerosol WG (ongoing work in Colette's group)
- There is still an issue with acetone, which Emily suggests may be related to terrestrial biosphere. But unclear how this should be fixed.

j. Transport (Hongyu)

- Aerosol lifetime has been decreasing in recent versions of the model due to faster wet scavenging. Current 210Pb lifetime in model is 6.6 days whereas the generally accepted lifetime is 9-10 days. However, Hongyu's analysis of aircraft data suggests that the current model is doing fine and that the canonical value of 9-10 days may be too long.

Results are still preliminary but don't call for changing the model scavenging at this point.

- Karen Yu (Harvard) working on Rn simulations to diagnose the effect of temporal and spatial averaging in the GEOS-FP data at ¼ degree resolution. Daniel plans to update on this at the next telecon.